THE PALEO INDIAN: FACT AND THEORY OF EARLY MIGRATIONS TO THE NEW WORLD

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There is general acceptance among most scholars, that man originated in the Eastern Hemisphere and spread at a relatively late date into the new world. Language diversity and complex economic-cultural environmental specialization suggests a considerable age, but not necessarily great antiquity. In this article, these evidences of fact and theory of early migrations to the new world, are considered:

The emergence of Paleo-Indian archaeology began in 1926, when Howard Cook and J. D. Figgins traveled to Folsom, New Mexico, to excavate fossil bison, first discovered about 1909 by a Negro cowboy, George McJunken. During the excavation of 23 bison, 19 projectile points now identified as Folsom were found in association with the remains. Initial geologic estimates of the age of the site was 25,000 years. Later estimates, using radiocarbon and other sophisticated techniques, put it within the 10,000-year old time bracket.

In the western part of the United States, four point types appear to be associated with Folsom material dating older than 10,000 years. The Folsom point has been dated at the Lindenmeier site in Colorado at 8820 B. C. plus or minus 375 years, the earliest date yet found for a Folsom complex. Its prototype, the Clovis point, appears before 9,000 B. C., but is yet to be found in any concentration earlier than 9,500 B. C. The Sandia points go still farther back to an acceptable radiocarbon date, but recent investigation by Agogino and Haynes places it no older than the Clovis culture. A fourth possible complex, the Midland culture, has been a subject of controversy, since Agogino tends to group Midland points as identical to Folsom points, except that they lack the characteristic flute, (Fig. 1). He points out further that the associated tools are virtually identical, and suggests that the Midland culture should be dropped as a separate entity, and should be considered as a simple variant point style of the Folsom people.

All the points discussed are typologically sophisticated, and one would expect to find prototypes either within the Americas or in the areas adjacent to the the Bering Straits, the most acceptable land bridge to the new world. Until now, these prototypes have not been found, or at least not recognized. Most points in Siberia are different in style, tradition, and technique from the new world of Paleo-Indian points in the Americas, prove to be more recent than the new world types, and appear to be cultural backwash from the western hemisphere.

There is strongly suggestive evidence of a pre-projectile horizon in America, although to date the validity of this horizon has not been firmly established. During the Pleistocene, there were four major glaciations on both the North American and European continents. The European glaciations were the Gunz, Mindel, Riss, and Wurm. The North American glaciations were the Nebraskan, Kansan, Illionian, and Wisconsin. In both North America and Europe, these glaciations were extensive. It is the general consensus that the North American and European glaciers occurred at approximately the same time. The Wisconsin glaciation was the most recent and of most importance as far as this article is concerned. It has been divided into several sub-stages. From earliest to latest, these stages are: Altonian, Farmdale, Iowan, Tazewell, Gary, Mankato, and Valders. These sub-stages are what might be called small glaciations within a large glaciation. During the life span of the Wisconsin, there were advances and retreats of the glacier within its general movement pattern. These pulsations could have been several thousand years in duration, thus making them important enough to be considered as separate parts of the main ice age. During the peak of the Wisconsin glaciation, there was a completely unbroken sheet of ice that stretched from the Pacific to the Altantic Ocean, covering an area that extended from the northern United States to the Arctic Circle. In some places this ice was as thick as 4,000 feet.

The Glacier was made up of two main ice masses, the Cordilleran and the Laurentide. The Cordilleran

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ice sheet moved southward out of British Columbia and continued in a southerly direction, climaxing in the area of the Columbia River Valley. Beyond this point to the south and southwest, there were occasional isolated alpine glaciers in the mountains. This phenomenon extended to southern New Mexico. In the north, the mountains of Alaska and the Aleutians were covered by ice. The ice extended westward down the slopes of the Rocky and Coastal Mountains to the Pacific Ocean. The eastern slope of the Rocky Mountains was the western-most boundary of the Laurentide ice sheet. The Laurentide ice sheet was bounded by the Arctic on the north and the Atlantic Ocean on the east. The southern border extended from Northern New Jersey through the Ohio Valley, then west to the Missouri River. In Central Western Canada, it met the Cordilleran ice sheet. (Willey, 1966, 26-27.)

The presence of the ice sheets had a definite effect on the climate of the whole North American continent. At this time, the climate south of the glacier was much different than it is today. The areas in close proximity to the terminal portion of the glaciers were mainly outwash plains with considerable vegetation in summer. There was a great deal more precipitation over the entire continent, this being called a "pluvial period." The western and southern areas of the country were much wetter and cooler than they are today, the arid southwest being a lush grassland.

The glacial periods were accompanied by inter-glacial periods, a period of time when the glacier stops advancing and begins to retreat. These inter-glacial periods can exist as long as a stage of glaciation can. During this inter-glacial or recessional period, everything that is true of the expanding ice sheet period is reversed.

Radiocarbon has been used to date the sub-stages of the Wisconsin glaciation. This has worked relatively well, but as might be expected, there are some complications. Considerable work has been done in dating between the Mankato and Valders sub-stages of the Wisconsin glaciation. In his recent book, Gordon Wiley has explained it as follows:

> The Two Creeks recession of the glacial advance is placed at about 10,000 B. C. C. V. Haynes has more specifically placed it at between 10,300 and 9,800 B. C. Earlier radiocarbon date readings on the Farmdale sub-stage, the Farmdale-Iowan interstadial, the Iowan sub-stage and the Tazewell sub-stage range from 28,000 to 16,500 B. C. According to M. M. Leighton, (1960, 529-552) the Wisconsin glacial period begins with the Farmdale sub-stage which, in turn, marks the end of the Sagomon inter-glacial at some time before this earlier date. Fry and Willman, (1960, 285) on the other hand, insert the pre-Farmdale-Altonian sub-stage and subsequent inter-stadial with the beginning of the Wisconsin sequence. They date the Altonian prior to 35,000 B. C., the extreme range of the radiocarbon determinations. Back of this point, it is estimated that the Altonian began or the Sagomon ended, as long as 70,000 years ago. In accordance with this downward extension of the dating and the beginnings of the Wisconsin, a major interstadial is inserted, and what is here referred to as the Altonian and the Farmdale. Estimated dates for this interstadial reach back 30 to 40 thousand years.
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> Leighton terminates the Wisconsin stage with the end of the Valders advance, shortly after 9,000 B. C. Haynes (1964: 1408-1413) dates the Valders to a short 9,000 - 9,500 B. C., immediately following the Two Creeks interval, and considers the two or three millenniums following 9,500 to 7,000 B. C. as the time of the Valders recession. Some authorities would describe the anathermal climatic stage following the Valders and ranging from about 7,000 B. C. to the onset of the warm climates of the altithermal, at about 5,000 B. C. The minor Cochran advance with anathermal is placed at about 6,000 B. C. Some geologists assume that the beginning of the altithermal at 5,000 B. C. marks the line between the Wisconsin and the Recent. Fry and Willman, on the other hand, bring the Valders down to about 3,000 B. C., at which point they close the Wisconsin. To a large extent, this is a difference in terminology. Geologists generally recognize that since about 8,000 B. C., the glaciers have been on the want, and this melting of ice has continued down to the present, with climatic optimum, or warm period, lasting from about 5,000 to 2,500 B. C. The climate of the medithermal, essentially, is the climate we know today, although there have been slight local fluctuations within the last 4,500 years, that seem to have affected both man and his culture. Dating of the Wisconsin stage glacial stratigraphy derives almost all of its information from the Laurentide formations. Glacial sequences in western North America and elsewhere in the western hemisphere are less well developed.
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> Evidence of relatively dry and wet periods in geological columns in the North American High Plains, Great Basin, and the Southwest have been used, however, in attempts to relate such climatic changes to specific periods of glacial advances and retreats further north. Thus, it has been argued that an arid, erosional interval on the high plains correlates with the Two Creeks recession and that it was at this time that much of the Pleistocene Fauna became extinct in that part of the continent. (Willey, 1966, 29.)

The reason that the Wisconsin glaciation is so important is that it is responsible for the migration of man to North America. The land bridge was brought into being by the glaciation, and it was over this land bridge that man entered the New World. This migration could have taken place almost any time while the land bridge existed. When the glaciers formed, they locked up vast amounts of water. This, in turn, caused the sea level to fall. The Bering Strait, which separates Alaska and Siberia, is, on the average, only 140 feet deep. When the level of the sea had dropped that distance, there was land where before there had been about 60 miles of water. Getting from Siberia to Alaska was only half the problem, however; because,

in order for man to get into the interior of North America, he had to travel through the gap between the Laurentide and Cordilleran ice sheets, either before they met or after they parted. This gap followed along the eastern slope of the Rocky Mountains and through the unglaciated interior of Alaska.

Radiocarbon dates, taken from submerged shore features, indicate that lower sea levels existed at various times during the late Pleistocene. Some of these dates indicate that 11,000 - 12,000 years ago sea level was about 350 feet lower than today, and that 15,000 - 16,000 years ago sea level was as much as 230 feet lower than at present. 35,000 years ago it was as much as 470 feet lower. Around 19,000 years ago and between 26,000 - 30,000 years ago, sea level was as high or higher than at the present time.

This would mean that a land bridge, between Siberia and Alaska, was in existence from at least 24,000 to 11,000 B. C., and from 35,000 - 45,000 years ago, there was a land bridge that existed for about 10,000 years. Therefore, at any time during this period, man could have crossed from Asia to North America and lived in the unglaciated areas there. (Wendorf, 1966, 255-257.)

Exactly when the ice sheets joined or separated is not known. We now have a large number of radiocarbon dates, which can be related to glacial features in both Canada and the United States. This gives a very useful framework within which these two events may be placed. The dates, when placed in categories, show immediately that there is only one sample (GSC-210, 17,200-250 B. C.) that is within the period from 11,000 to 9,000 B. C.; 27 are between 18,000 to 28,000 B. C.; and 60 are greater than 28,000 B. C.

Because only one sample is dated between 11,000 and 18,000 B. C., we may surmise that glaciers covered the majority of Canada during this time period. On the other hand, the abundance of samples dating between 18,000 and 28,000 B. C. indicate that at this time the area was free of ice. Ice did not completely cover the area until approximately 18,000 B. C. Other C-14 dates tend to indicate that the area was not free of ice until after 10,000 B. C., the time of the Two Creeks recession. (Wendorf, 1966, 257-258.)

Currently, several possible "pre-projectile point" cultures have been investigated, which may eventually extend the period of human occupancy of the Americas to 20,000 years or more, particularly since a number of discoveries at various locations have yielded radiocarbon dates ranging from 20,000 to 40,000 years B. C. However, these dates, from sites such as Tule Springs, (Nevada); Lewisville, (Texas); Texas Street, (San Diego, California); Santa Rosa Island, (California); and others, were based on preliminary or incomplete evidence. There is as yet no single discovery which gives positive evidence for the presence of man in the New World earlier than 14,000 years ago. Perhaps the best candidate for a pre-projectile culture at the present time rests with the Mexican research of Dr. Cynthia Irwin-Williams and several Mexican archaeologists, who are currently investigating the Valsequillo gravels near Puebla, Mexico.

North American fluted points are typologically sophisticated, and one would normally expect to find their prototypes either within the Americas or in areas adjacent to the Bering Straits, which provide the accepted land bridge to the New World. Until now, such prototypes have not been found, or at least have not been recognized.

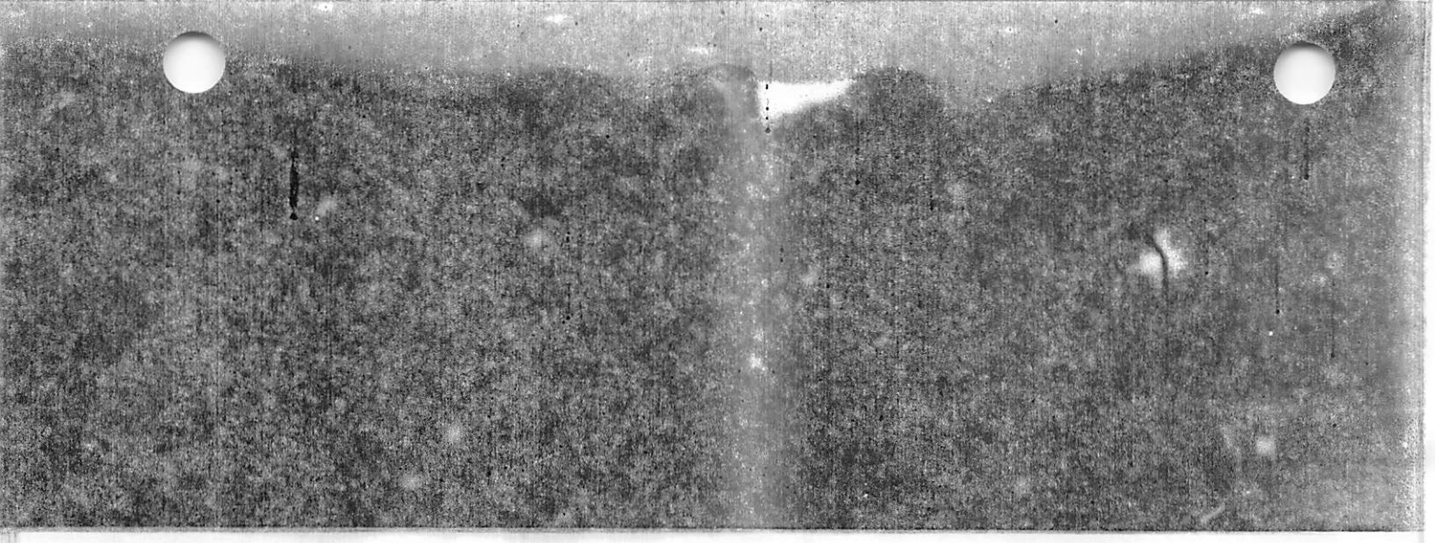
The hypothesis that man appeared in America before the time of any of the point cultures hitherto identified should not be rejected out of hand; there may well have been small groups present whose technology had not advanced to the stage of making projectile points. If this was the case, the number of sites could be expected to be small; in view of the tendency of American archeologists to identify culture by point types, they might well remain unrecognized owning to the absence of "diagnostic points."

Plainview points have been found as far north as Alaska. One was found in a Pleistocene muck deposit in the Tanna River Valley (Rainy, 1940, 299-308), and a similar point was found near Circle Alaska (Hibben, 1941, 254-259). Another was found by J. L. Giddings, Jr. (personal communication) in 1951, north of the Bering Strait. R. S. MacNeish, at a site on the Great Bear Lake, Canada, found four projectile points of this type (personal communication).

There have been a number of Milnesand points, found in Alaska and Canada. One near the University of Alaska, and several from Alberta and Saskatchewan.

Eden points have also been found in the north, one along the Peace River in Alberta, one along the Alaska Highway, and one found with the bones of extinct animals in a muck deposit near Fairbanks. Several Frederick points have also been found in Alaska.

The Campus site, near the University of Alaska, when excavated, was found to contain end scrapers and blades struck from small polyhedral cores. The blades were supposedly similar to some found in the Gobi Desert, in Mongolia. Also, there was a strong similarity with some found in the Lake Baikal area of Siberia.



The Iyatayet site is located on the west side of Cape Denbigh on the Norton Sound on a high beach terrace. The artifacts from the site are quite varied including: burins, a large number of micro blades, a number of end and side scrapers, microliths, several polyhedral cores, and a variety of scrapers. The specimens, which were similar to Paleo-Indian types, included a fluted point that was approximately the same size as the average Folsom point, but basically triangular in outline. There were three flakes with small projections at the end, and these closely resembled the gravers found at the Lindenmeier site. Also found, were points which were similar to the Scottsbluff type, one which resembled a Plainview point, and large fragmentary points which were probably lanceolate in outline and bore parallel flake scars across the face of the blade.

Assorted tools resembling those found in the Denbigh Flint Complex have been found in other localities in Alaska, in the Yukon Territory, in the Aleutians, and the Northwest Territories; also burins have been found as far east as Greenland. After examining the evidence, it appears that sites of the greatest age are found in the South Western areas of North America, indicating that the early immigrants actually spent little time in Alaska, but moved rapidly into the interior of the continent.

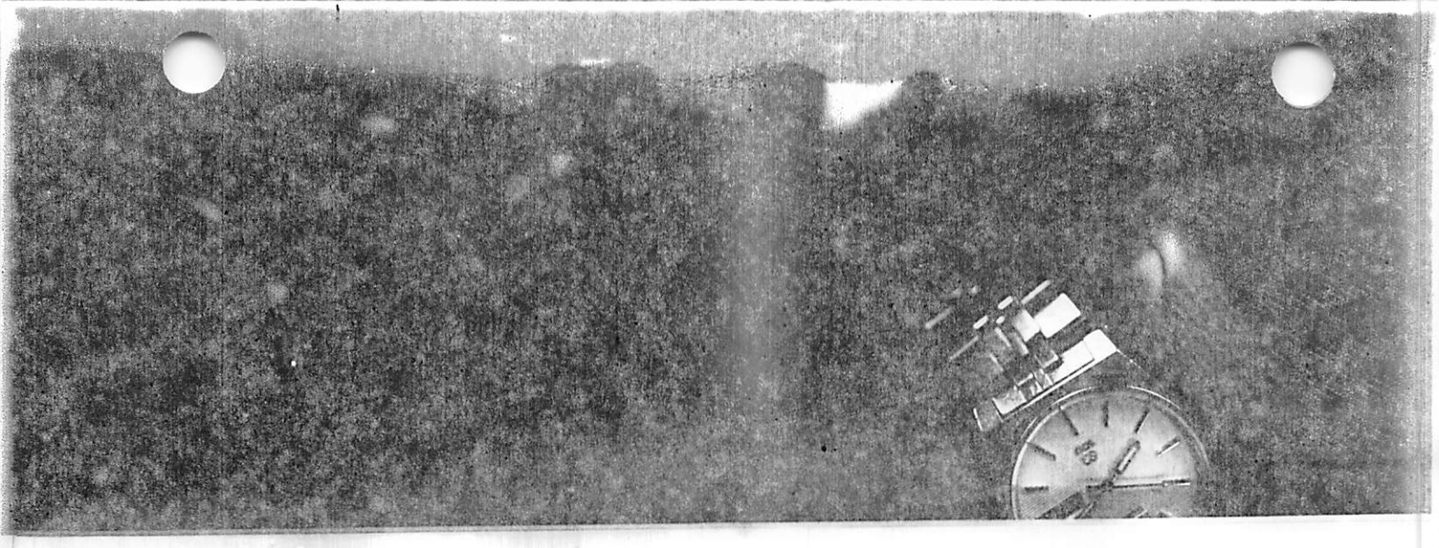
In all probability there are several reasons why man left Asia and came to North America: he may have been following his food supply, and/or he may have been pushed in that direction by people coming in from the south or west. The animals, on which man depended at this time, had preceded him over the land bridge between Siberia and North America. This is evident by the tremendous amounts of fossil remains of bison, musk ox, goat, moose, wooly mammoth, mastodon, and other animals which did not originate in North America. Many of their bones date between 25,000 and 30,000 years ago. If these animals could use this land bridge that long ago, then surely man could also. Gordon Willey sees the possibility of mid-Pleistocene man in America as quite good. As he points out:

> . . . numerous instances of chipped stone tool complexes whose typology and isolation from technology and more advanced implements suggest great age. These have been found in all parts of the hemisphere and the simplest way to explain them is to say that they represent a stage of cultural and technological development that had very ancient beginnings in the Americas. Their beginnings most likely derived from middle Paleolithic chopping tool industries of eastern Asia. Yet there are other explanations. Such complexes could on occasion represent no more than a partial sample of the full complement of artifacts possessed by the people who made them, or they may represent technological regression from the more advanced standards of flint working of the early projectile point complexes. As things stand now, the "pre-projectile point horizon" will not be demonstrated beyond reasonable doubt until a complex or assemblage of materials attributable to it are found stratigraphically beneath artifacts of the well-known 10,000 to 12,000 year old bifacially flaked lanceolate or leaf-shaped point class, or failing this, until the crude, non-projectile point complexes are found in indisputable association with middle or early Pleistocene deposits and convincing radiocarbon datings. (Willey, 1966, 33.)

It is fairly well established that man did not originate in the New World. All the current evidence shows that man in the New World always has been Homo sapien. There are no lower anthropoid forms in the New World from which man could have evolved. This indicates that man probably did not enter the New World until Homo sapiens were widespread throughout the Eastern Hemisphere, especially in northeastern Asia.

Most physical anthropologists believe that the North American continent was basically populated by people from northeastern Asia. There probably was a little trans-Pacific migration, but not enough to have had the slightest effect on the physical type in the New World. The main point of difference among physical anthropologists is connected with the variability within the New World Indian populations. The further south, in North America, the less Mongoloid the features of the Indians were. In Central and South America, the natives have wavy hair, very dark skin, and short straight noses. This suggests separate migrations from Asia to the New World. J. B. Birdsell says that such groups as the Negritos, Carpentarians, and Amurians, which were the Caucasoid prototype of the Ainu, and in his opinion, the American Indian, had a di-hybrid origin of Amurian-Mongoloid mixture. He also believes that if man reached America as early as the third interglacial, he was more Amurian than Mongoloid. Whatever the case may be, whether the American Indians came from Mongoloid hybrid, or unspecialized Mongoloid, or pure Mongoloid stock, one fact stands out, that considerable physical variation does exist. Another way of explaining these differences is that New World populations have responded to environmental adaptation and change. The idea behind this is that warm-blooded peoples, as well as animals, of a single, widely varying species will be larger in cold climates and smaller in warm climates. This is a function of body heat retention or dissipation.

Whether man entered the New World 30,000 to 40,000 years ago, or 10,000 years ago, this still gives ample time for physical change to take place. On the other hand, under the assumption that there were



many migrations, these various groups, given time, probably intermingled to an extent, and in consequence there was a change in physical features. Blood types indicate that most American Indians are quite separate from Asiatic Mongoloids except in northern North America. These are the Eskimo and the Athabaskan, which are a more recent migratory group. (Willey, 1966, 13.)

It is not known when man first came to America. He may have crossed the Bering land bridge as far back as the early or middle Wisconsin ice age, or even earlier. The latest he could have entered would have been around the Two Creeks interval between the Valders and Mankato substages. If these first people did come over during the early or middle Wisconsin, their technology and their equipment, skills, etc., would certainly be relatively primitive compared to the Paleo-Indian evidence which has been found in North America. Their technology probably came from the flint chipping industry of southeastern Asia and the chopper and chopping tool complex of the same area. There are no New World artifact assemblages, which have been found under definite conditions of great antiquity, which resemble those tool assemblages of middle or early Paleolithic Asia or Siberia. There are a number of artifacts which have been recovered, which are similar to those of early Paleolithic Asia. Most of these, however, have been surface finds and therefore it is a matter of opinion as to whether they are of any great age. These American artifacts consist of thick flint scrapers, choppers, and worked flakes. In these assemblages there are no bifacially flaked implements or projectile points. There is some comparison with the big game hunting tradition in Siberia with the one in America. This involves a bifacially flaked leaf-shaped point or blade which has been found, in Western Siberia, in Mousterian-like Paleolithic context which dated around 20,000 B. C. This would seem to be the earliest Asiatic source for any American projectile point tradition. Many anthropologists think, however, that the big game hunting tradition of the American variety was indigenous to the North American continent.

C. S. Chard (1959, 44-49) believes that man entered North America in mid-Pleistocene times or earlier. He feels that only Siberian and Far Eastern Paleolithic cultures were old enough to have provided the cultural heritage for early immigrants to the Americas. These industries lacked both bifacial points and blades, as they were characterized by rough core tools. An example of this would be the Fenho complex of northern China, which was similar to the California Manix Lake Choppers. He believes that the American tradition of bifacially flaked Lanceolate projectile points evolved independently in North America without any outside influence other than what they brought with them when they first came to North America. He also feels that there were other major movements into North America about 25,000 years ago which may have brought from central Siberia certain Levallois Mousterian elements including a rather crude blade technique.

Other ideas are based on bifacial blades or points in certain Paleolithic complexes of western and southwestern Siberia. These complexes are quite a bit different than those of the East, in that they were affiliated with European Paleolithic cultures such as Mousterian, Soluteran, and Magdalenian. These reflected a lot of the Pleistocene big hunting techniques, which were missing in the Asian chopper-chopping tool tradition. Chard felt that these traditions were too late and too remote, geographically speaking, to have provided a prototype for the New World developments of Mankato or Mankato-Cary age. The excavation of Ust 'Kanskaia Cave, in the Altai Mountains of southwestern Siberia, has shown a tool assemblage which appears to be late third interglacial. This is the earliest Siberian Paleolithic site known at present. The artifacts from this cave show a sort of Mousterian tradition.

H. M. Wormington feels that the blade technology passed from southwestern Siberia to the east, where it met and blended with the older Asian chopper-chopping tool tradition. This fusion of traditions then moved North and East to the Bering Strait. She feels that such events could have occurred as much as 20,000 years ago, early enough for the complex to have entered the New World as the basis for modifications that gave rise to the fluted and other Lanceolate projectile points of the late Wisconsin stage. (Willey, 1966, 25-29)

E. N. Wilmsen points out that the Alaskan and northern Yukon artifact assemblages, of Kogruk and British Mountain, shared such features as a Levallois-Mousterian percussion-flaking technique, large bulbar flakes resulting from this technique, gravers, unifacial points, and crude bifaces made from flakes. These same features were shared with the Siberian Buret-Malta complex from the central Lake Baikal region and from the Lena River Valley. An important part of Wilmsen's argument is that Malta assemblages include fluted flake tools, not points, but artifacts resembling burins. This crude fluting was also done on a few bifacial blades or points in the British Mountain complex. Neither British Mountain nor Kogruk have been securely dated, but from stratigraphic and geologic evidence it is thought that they may date as early as 16,000 B. C. The date of the early culture at

Buret-Malta is questionable, but at the present time is thought to be from 15,000 to 20,000 B. C. Wilmsen sums up his idea as follows:

> . . . a group of hunting oriented people have developed tools and social techniques to prey successfully upon the smaller units of late Pleistocene magafauna, began to expand rather rapidly into areas favorable to this type of economy. Their tool making technique was based on the Lavallois-Mousterian flake tradition and developed into a flake-blade industry from which points effective in killing smaller grazing animals evolved. Sometime during the period 21,000 - 11,000 B. C., these people crossed the Bering Strait, which was then crossable on foot and became the first effective, if not the initial inhabitants of the North American continent. Kogurk and British Mountain may or may not represent the earliest penetration, but they are certainly part of this same general movement and should therefore date within this period. These people spread eastward along the Alaskan foothill country, then southward keeping to the foothills, where, under the stimulus of a desire to include larger mammals in their regular diet, the incipient fluting technique, which was part of their cultural equipment, became the instrument which provided a highly effective tool for the realization of this end. This tool was the Clovis fluted point which was so effective that it permitted its possessors to spread very rapidly over all of North America below the Mankato Ice Sheet. (Wilmsen, 1966, 36)

Willey says:

> First I think it likely that the "pre-projectile point horizon" is a reality and that man first crossed into America as far back as 40,000 to 20,000 B. C. I say this not so much because of the numerous surface collection assemblages or complexes that have been found widely over the Americas, and that present a typology that seems inconsistent with the American specialized hunters. As Krieger has made clear, not all these complexes need be extremely ancient, but I think that some of them must be. In expressing this view, I wish again to make it explicit that I do not believe that present evidence is adequate to support it beyond reasonable doubt.
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> Second, the hypothesis of a Levallois-Mousterian complex being carried to the New World from Siberia during the period of 20,000 to 10,000 B. C. strikes me as highly likely. I think that this is the best explanation for the presence of Lanceolate and fluted blade forms in America and for the specialized hunting economy with which they are found in association. I see no essential conflict in postulating this as well as an earlier entry by less specialized flint workers and hunters. The later arrivals could have superceded or merged with a resident population. The earlier ways of life and stone industry would have been modified or replaced by the later patterns, being retained, perhaps in marginal areas for a time. (Willey, 1966, 37.)

Agogino, on the other hand, has been accused by some contemporaries of being a "later date Hrdlicka" because of his refusal to accept uncritically any of the current North American pre-projectile point horizon for both continents. In fact, Agogino, like Chard, postulates the possibility that man in small units may have reached America in a period prior to the Wisconsin Glaciation. If this proves true, it is also possible that such individuals were physically pre-Homo sapiens. These bands, if they did exist, never expanded to any extent to the late Pleistocene times, and evidence of their existence is both sparse and sites few. Many of the archaeological sites discovered and excavated in the past few years has strong suggested evidence with fair to good validity, supporting the existence of pre-projectile man. In some instances, however, faulty assumptions, have clouded the issue, particularly due to the inability to distinguish between pre-projectile and non-projectile horizons. This is very evident in South American preceramic research, and to a lesser degree in North America. Quarry tools reminiscent in style to tools of the European Paleolithic, but often only a few hundred years old, fall into this category of certain types of specialized wood working tools found in our close-to-forest areas.

The emergence, culture, and existence of early pre-projectile complexes in the Americas is still veiled in archaeological limbo, but each year the secrets of late pre-projectile cultures dating about 20,000 years in age seems to become more of a reality and should, according to Agogino, become a certainty. One thing is clear even now. The Indians who made the classic Paleo-Indian point cultures were not the first people to walk the land mass of the Americas. Yet other representatives, not necessarily even Homo sapiens, left his footprints earlier. He is a representative of a generalized concept today known as pre-projectile man. Tomorrow we hope to name him in more specific terms and in doing so, add to the complex and wonderful story of Paleo man.

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